



PATENT COOPERATION TR



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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

	ticle 30 and Rule 70)	_	
FOR FURTHE	R ACTION	See Form PCT/IPEA/416	
11 December	r 2003 (11.12.2003)	Priority date (day/month/year)	
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Box No. II Priority			
Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability			
Lack of unity of invention			
Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; Box No. VI Certain documents cited			
cited			
Box No. VII Certain defects in the international application Box No. VIII Certain observations on the international application			
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Form PCT/IPEA/409 (cover sheet) (January 2004)

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INTERNATIONAL

MINARY REPORT ON PATENTABILITY

rnational application No.

PCT/JP2003/015900

Box No. I	Basis of the report
otherwis	ard to the language, this report is based on the international application in the language in which it was filed, unless e indicated under this item.
T T	his report is based on translations from the original language into the following language, which is language of a translation furnished for the purpose of:
	international search (under Rules 12.3 and 23.1(b))
Ī	publication of the international application (under Rule 12.4)
Ī	international preliminary examination (under Rules 55.2 and/or 55.3)
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furnishe and are	gard to the elements of the international application, this report is based on (replacement sheets which have been d to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" not annexed to this report):
	ne international application as originally filed/furnished
	e description: , as originally filed/furnished
1	
	received by this Authority on
th	e claims:
1	ages, as originally filed/furnished
-	ages*, as amended (together with any statement) under Article 19
-	received by this Authority on
pa	received by this Authority on
th	ne drawings:
p	ages, as originally filed/furnished
p	ages* received by this Authority on
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Па	sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.
], 🗆 -	he amendments have resulted in the cancellation of:
3 T	
اِ اِ	the description, pages
	the claims, Nos.
	the drawings, sheets/figs
	the sequence listing (specify):
	any table(s) related to sequence listing (specify):
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n	This report has been established as if (some of) the amendments annexed to this report and listed below had not been nade, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box Rule 70.2(c)). The description, pages
	the claims, Nos.
	the drawings, sheets/figs
1 i	the sequence listing (specify):
	any table(s) related to sequence listing (specify):
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* 70'-	4 applies, some or all of those sheets may be marked "superseded."
† If item	4 applies, some or all of mose sneets may be marked supersease.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

Intern	ational application No.
	PCT/IP03/1500/

	Reasoned sta	The different state of the second to many the second to many	aventive step	PCT/JP03/15900
		planations supporting such statement		applicability;
1. Statement				
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Novelty (N)	Otatora		
- 7 (- 1)	Claims	3, 5-11	YE
	Claims	1, 2, 4	NC
Inventive step (IS)	Claims		
	Claims	1-11	YE
Industrial applicability (IA)	Claims		NO
	Claims	1-11	YE
			NO

2. Citations and explanations (Rule 70.7)

Document 1: JP, 10-295095, A (Hitachi, Ltd.), 4 November, 1998 (04.11.98), all pages (Family: none)

Document 2: CD-ROM of the specification and drawings first annexed to the written application of Japanese Utility Model Application No. 56785/1991 (Laid-open No. 2598/1993) (Honda Motor Co., Ltd.), 14 January, 1993 (14.01.93), all pages (Family: none)

Document 3: JP, 2001-18822, A (Toyota Motor Corp.), 23 January, 2001 (23.01.01), all pages (Family: none)

Document 4: JP, 9-23699, A (Yamaha Motor Co., Ltd.), 21 January, 1997 (21.01.97), all pages (Family: none)

Document 1 describes a controller for a three-phase brushless DC motor, which (1) estimates the rotational position, (2) calculates the speed from the said estimated rotational position, and (3) selects either PWM control or PAM control in response to the said speed, for performing control. Furthermore, letting the speed used for selection have hysteresis characteristics is also described.

Document 2 describes a motor controller for performing control to ensure that the motor current can be transformed into a rectangular wave current.

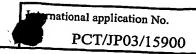
Document 3 describes a motor-operated power steering device for a vehicle using a brushless motor.

Document 4 describes a controller for a permanent magnet synchronous motor, which calculates the field current quantity from the torque and the rotational speed and gradually decreases the field current in relation with the rotational speed at higher than a predetermined rotational speed to prevent excessive rotation, for performing weak field control in a high speed range.

The subject matters of claims 1, 2 and 4 do not appear to be novel or to involve an inventive step in view of document 1.

The subject matter of claim 3 does not appear to involve an inventive step in view of document 1. Using a Hall sensor for estimating or detecting the speed is a mere well-known conventional technique.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY



Supplemental Box

In case the space in any of the preceding boxes is not sufficient. Continuation of: V

The subject matter of claim 5 does not appear to involve an inventive step in view of documents 1 and 2.

A person skilled in the art could have easily controlled the current of the motor described in document 1 for transformation into a rectangular wave current as described in document 5.

The subject matter of claim 6 does not appear to involve an inventive step in view of documents 1-3.

A person skilled in the art could have easily constituted a motor-operated power steering device using a brushless DC motor.

The subject matter of claim 7 does not appear to involve an inventive step in view of document 4. A person skilled in the art could have easily expressed a predetermined rotational speed using a base angular speed and a coefficient.

The subject matters of claims 8-11 do not appear to involve an inventive step in view of documents 1-4.

A person skilled in the art could have easily performed weak field control as described in document 4 at higher than a certain rotational speed in the motor control described in document 1.